

Claims

1. An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of:
 - 5 a) a nucleotide sequence encoding the IGS1 polypeptide according to SEQ ID NO: 2;
 - b) a nucleotide sequence encoding the polypeptide encoded by the DNA insert contained in the deposit no. CBS 102049 at the Centraalbureau voor Schimmelcultures at Baarn the Netherlands, in particular a nucleotide sequence
10 corresponding to the SEQ ID NO: 1;
 - c) a nucleotide sequence having at least 80 % (preferably at least 90%) sequence identity over its entire length to the nucleotide sequence of (a) or (b);
 - d) a nucleotide sequence which is complimentary to the nucleotide sequence of (a) or (b) or (c).
- 15 2. The polynucleotide of claim 1 wherein said polynucleotide comprises the nucleotide sequence contained in SEQ ID NO:1 encoding the IGS1 polypeptide of SEQ ID NO:2.
3. The polynucleotide of claim 1 wherein said polynucleotide comprises a nucleotide
20 sequence that is at least 80% identical to that of SEQ ID NO:1 over its entire length.
4. The polynucleotide of claim 3 which is the polynucleotide of SEQ ID NO:1.
5. The polynucleotide of claim 1-4 which is DNA or RNA.
- 25 6. A hybridization probe comprising the polynucleotide of claim 1 or a fragment thereof of at least 5 nucleotides and preferably between 30 and 50 nucleotides.
7. A DNA or RNA molecule comprising an expression system, wherein said expression
30 system is capable of producing an IGS1 polypeptide comprising an amino acid sequence, which has at least 80% identity with the polypeptide of SEQ ID NO:2 when said expression system is present in a compatible host cell.
8. A host cell comprising the expression system of claim 7.
- 35 9. A host cell according to claim 8 which is a yeast cell

10. A host cell according to claim 8 which is an animal cell
11. IGS1 receptor membrane preparation derived from a cell according to claim 8-10.
12. A process for producing an IGS1 polypeptide comprising culturing a host of claim 8 under conditions sufficient for the production of said polypeptide and recovering the polypeptide from the culture.
13. A process for producing a cell which produces an IGS1 polypeptide thereof comprising transforming or transfecting a cell with the expression system of claim 7 such that the cell, under appropriate culture conditions, is capable of producing an IGS1 polypeptide.
14. An IGS1 polypeptide comprising an amino acid sequence which is at least 80% identical to the amino acid sequence of SEQ ID NO:2 over its entire length.
15. The polypeptide of claim 14 which comprises the amino acid sequence of SEQ ID NO:2.
16. An antibody immunospecific for the IGS1 polypeptide of claim 14.
17. A method for the treatment of a subject in need of enhanced activity or expression of IGS1 polypeptide receptor of claim 14 comprising:
- (a) administering to the subject a therapeutically effective amount of an agonist to said receptor; and/or
 - (b) providing to the subject an isolated polynucleotide comprising a nucleotide sequence that has at least 80% identity to a nucleotide sequence encoding the IGS1 polypeptide of SEQ ID NO:2 over its entire length; or a nucleotide sequence complementary to said nucleotide sequence in a form so as to effect production of said receptor activity in vivo.
18. A method for the treatment of a subject having need to inhibit activity or expression of IGS1 polypeptide receptor of claim 14 comprising:
- (a) administering to the subject a therapeutically effective amount of an antagonist to said receptor; and/or
 - (b) administering to the subject a polynucleotide that inhibits the expression of the nucleotide sequence encoding said receptor; and/or

- (c) administering to the subject a therapeutically effective amount of a polypeptide that competes with said receptor for its ligand.

- 5 19. A process for diagnosing a disease or a susceptibility to a disease in a subject related to expression or activity of the IGS1 polypeptide of claim 14 in a subject comprising:
- (a) determining the presence or absence of a mutation in the nucleotide sequence encoding said IGS1 polypeptide in the genome of said subject; and/or
- (b) analyzing for the presence or amount of the IGS1 polypeptide expression in a sample derived from said subject.
- 10 20. A method for identifying agonists to the IGS1 polypeptide of claim 14 comprising:
- (a) contacting a cell which produces a IGS1 polypeptide with a test compound; and
- (b) determining whether the test compound effects a signal generated by activation of the IGS1 polypeptide.
- 15 21. An agonist identified by the method of claim 20.
22. The method for identifying antagonists to the IGS1 polypeptide of claim 14 comprising:
- (a) contacting a cell which produces a IGS1 polypeptide with an agonist; and
- 20 (b) determining whether the signal generated by said agonist is diminished in the presence of a candidate compound.
23. An antagonist identified by the method of claim 22.
- 25 24. A recombinant host cell produced by a method of claim 13 or a membrane thereof expressing an IGS1 polypeptide.
25. A method of creating a genetically modified non-human animal comprising the steps of
- 30 a) ligating the coding portion of a polynucleotide consisting essentially of a nucleic acid sequence encoding a protein having the amino acid sequence SEQ ID NO: 2 or a biologically active fragment thereof to a regulatory sequence which is capable of driving high level gene expression or expression in a cell type in which the gene is not normally expressed in said animal; or
- b) engineering the coding portion of a polynucleotide consisting essentially of a nucleic acid sequence encoding a protein having the amino acid sequence SEQ ID NO: 2 or a biologically active fragment thereof and reintroducing said
- 35 sequence in the genome of said animal in such a way that the endogenous

gen alleles encoding a protein having the amino acid sequence SEQ ID NO: 2
or a biologically active fragment are fully or partially inactivated.
